CLAIMS

1. Fused ceramic grains having the following average chemical composition by weight, in percentages by weight on the basis of the oxides:

   Al_2O_3: 93% to 98.5%;
   MgO: 2.2 to 6.5%;
   SiO_2: < 0.1%;
   other impurities: < 0.4%.

2. Grains according to claim 1, characterized in that the minimum MgO content, as a percentage by weight on the basis of the oxides, is 2.3%.

3. Grains according to claim 1, characterized in that the minimum MgO content, as a percentage by weight on the basis of the oxides, is 2.45%.

4. Grains according to any one of the preceding claims, characterized in that the maximum MgO content, as a percentage by weight on the basis of the oxides, is 4%.

5. Grains according to any one of claims 1 to 3, characterized in that the maximum MgO content, as a percentage by weight on the basis of the oxides, is 2.5%.

6. Grains according to any one of the preceding claims, characterized in that the maximum carbon content is 250 ppm.

7. Grains according to any one of claims 1 to 5, characterized in that the maximum carbon content is 200 ppm.

8. Grains according to any one of the preceding claims, characterized in that the maximum Na_2O content, as a percentage by weight on the basis of the oxides, is 0.1%, preferably 0.05%.

9. Grains according to any one of the preceding claims, characterized in that they consist of corundum crystals surrounded by a nonstoichiometric $MgO\text{-}Al_2O_3$ spinel phase.

10. Grains according to claim 9, characterized in that the mean size of said corundum crystals is between 18 and 20 μm

11. Grains according to either of claims 9 and 10, characterized in that 90% of said corundum crystals have a size of greater than 9 μm and/or 90% have a size of less than 27 μm.

12. Grains according to any one of claims 9 to 11, characterized in that 100% of said corundum crystals have a size of greater than 5 μm.

13. Process for manufacturing ceramic grains, which comprises the following successive steps:

a) preparation of a mixture of raw materials having the following average chemical composition by weight, as percentages by weight on the basis of the oxides:

Al_2O_3: 93% to 97.5%;
MgO: 2.2 to 6.5%;
SiO_2: < 0.1%;
other impurities: < 0.4%;

b) fusion, in an electric arc furnace, by means of a short arc and with a melting energy before casting between 2000 and 2500 kWh per ton of said mixture of raw materials, under defined reducing conditions so that the product obtained after the following step c) has a maximum carbon content of 250 ppm;

c) casting and quench cooling;

d) grinding of the cooled product.

14. Process according to claim 13, characterized in that said mixture of raw materials also contains between 0.8 to 5.5 wt% carbon and/or between 0.8 and 5.5 wt% aluminum metal chips.

15. Process according to either of claims 13 and 14, characterized in that it includes, after step d), a calcination step in an oxidizing atmosphere at a temperature above 1250°C.

16. Process according to claim 15, characterized in that the calcination temperature is above 1350°C.

17. Process according to claim 15, characterized in that the calcination temperature is above 1400°C.

18. Process according to any one of claims 15 to 17, characterized in that the calcination temperature is maintained for a time of at least 5 minutes.

19. Process according to any one of claims 13 to 18, characterized in that it includes a final step of screening the ground grains and selecting the screened grains.

20. Process according to claim 19, characterized in that said selected grains have a grit number of F50 or less according to the FEPA Standard 42-GB-1984.

21. Use of the grains according to any one of claims 1 to 12 and/or of the grains obtained by means of the process according to any one of claims 13 to 20 in abrasive products.

22. Use of the grains according to claim 21, characterized in that said abrasive products are bonded products or coated products.